



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,986	01/13/2004	Tianxin Wang		2243

7590 06/16/2008  
Tianxin Wang  
9768 Early Spring Way  
Columbia, MD 21046

EXAMINER
----------

GAKH, YELENA G

ART UNIT	PAPER NUMBER
----------	--------------

1797

MAIL DATE	DELIVERY MODE
-----------	---------------

06/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/755,986	<b>Applicant(s)</b> WANG ET AL.	
	<b>Examiner</b> Yelena G. Gakh, Ph.D.	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,8-17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 8-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Amendment, filed on 03/12/08, is acknowledged. Claims 1-3, 5-7 and 18 are cancelled. New claims 19-24 are submitted in the amendment. Thus, claims 4, 8-17 and 19-24 are pending in the application, and claims 19-24 are considered on merits, with claims 4 and 8-17 being withdrawn from consideration.

*Examiner's Comment:* amended claims should be presented on a *separate* page, rather than together with Remarks.

### *Response to Amendment*

2. The amendment filed 03/12/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "wherein said photon energy absorbing molecule contains a non polymer photon energy absorbing moiety having a molecular weight less than one thousand".

Applicant is required to cancel the new matter in the reply to this Office Action.

3. Rejection over the prior art remains the same.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 19-24** are rejected under 35 U.S.C. 102(b) as being anticipated by Voivodov et al. (Tetrahedron Lett., 1996).

Voivodov et al. disclose "surface arrays of **energy absorbing polymers enabling covalent attachment of biomolecules for subsequent laser-induced uncoupling/desorption**" (Title). The method for desorbing analyte molecules from a sample presenting surface (a probe) comprises: providing photon energy absorbing molecules (EAM), which are co-polymerized

Art Unit: 1797

with molecules having groups for covalent binding with target biomolecules (see Experimental Methods, pages 5669-5670), with the target molecules mixed and incubated with copolymers in methanol solution, followed by the desorption of the target molecules from the probe surface by laser irradiation of the probes coated with the copolymer covalently bound with the target molecules (page 5670, "Photo-induced uncoupling/desorption and time-of flight mass analysis" and the rest of the text). The copolymers may be used with additional matrix: "internal mass calibration standards and matrix (either 4 or 100 mM 3,5-dimethoxy-4-hydroxycinnamic acid in 50% aqueous acetonitrile) were added to the polymer based probe surface" (page 5670). The photon energy absorbing moiety is the fragment of  $\alpha$ -cyano-4-hydroxycinnamic acid with MW less than 1000 D, see Figure 1. The complex is immobilized on the probe surface (see Fig. 1).

### ***Response to Arguments***

6. Applicant's arguments filed 03/12/08 have been fully considered but they are not persuasive. Voivodov's disclosure fully covers the subject matter of the new pending claims, since the photon energy absorbing moiety (a fragment of  $\alpha$ -cyano-4-hydroxycinnamic acid) of the photoenergy absorbing molecules is not a polymer. No recitation regarding resulting complex not containing a polymer is found in the pending claims. However, if such recitation were present in the claims, Voivodov's disclosure would still make it obvious to use non-polymeric energy-absorbing molecules for forming complexes, because the essential part of the molecule utilized for covalent binding with the analyte is the photoenergy absorbing moiety, which is non-polymeric (e.g. a fragment of  $\alpha$ -cyano-4-hydroxycinnamic acid), and a long aliphatic hydrocarbon chain. Voivodov uses polymers based on such monomeric units for capability of complexing multiple biomolecular analytes, which is not a necessary condition for the method to be performed. The repeating unit of the polymer can be utilized as a monomer with exactly the same molecular structure, and action toward the analyte in MALDI analysis, as Voivodov's polymers, and therefore such modification of Voivodov's teaching is obvious for any routineer in the art.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yelena G. Gakh/  
Primary Examiner, Art Unit 1797

06/12/2008